

Electronic Supplementary Information

Polydopamine sacrificial layer mediated $\text{SiO}_x/\text{C}@C$ yolk@shell structure for durable lithium storage

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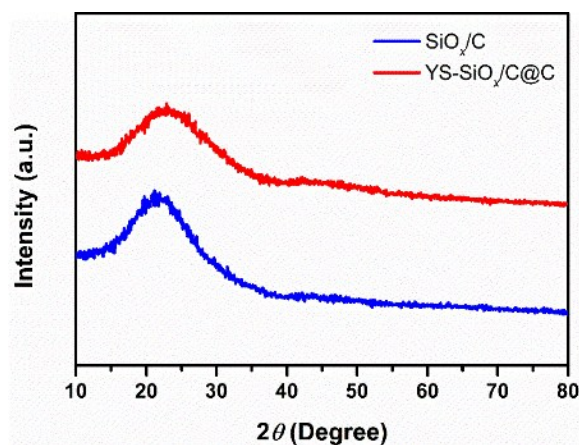


Fig. S1. XRD patterns of $\text{YS-SiO}_x/\text{C}@C$ and SiO_x/C .

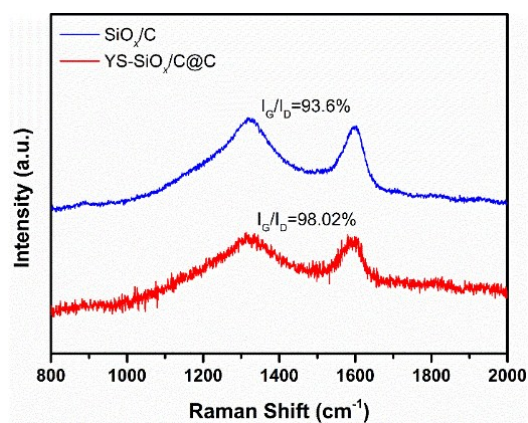


Fig. S2. Raman spectra of $\text{YS-SiO}_x/\text{C}@C$ and SiO_x/C .

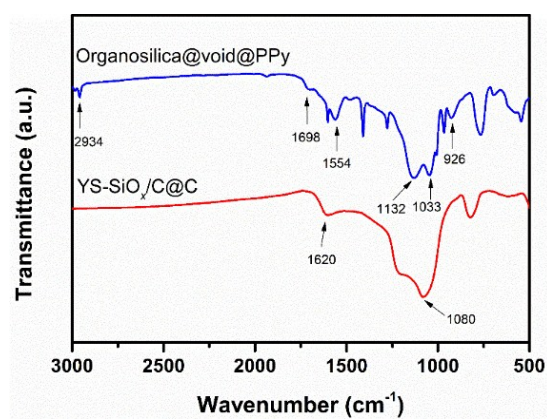


Fig. S3. FT-IR spectra of $\text{YS-SiO}_x/\text{C}@C$ and SiO_x/C .

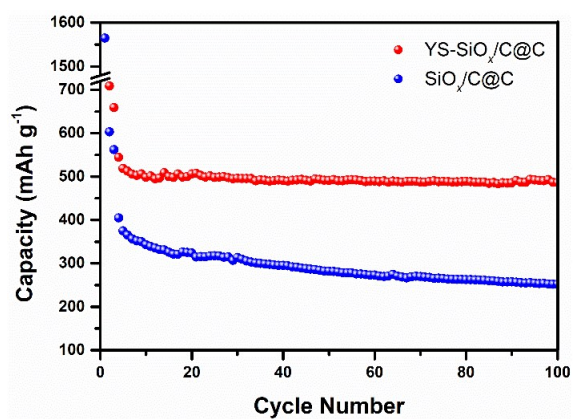


Fig. S4. Cycling performances of $\text{YS-SiO}_x/\text{C}@C$ and SiO_x/C at 2000 mAh g^{-1} . The samples were activated at 100 mA g^{-1} for three cycles.

Tab. S1. Comparison of the lithium storage performances of YS-SiO_x/C@C with state-of-the-art SiO_x based anode materials in literatures.

Sample	Reversible capacity	Cycle number	Ref.
YS-SiO _x /C@C	804 mAh g ⁻¹ at 100 mA g ⁻¹	100	This work
	577 mAh g ⁻¹ at 500 mA g ⁻¹	1000	
Si/SiO _x @NC	719 mAh g ⁻¹ at 100 mA g ⁻¹	100	1
	525 mAh g ⁻¹ at 500 mA g ⁻¹	400	
SiO _x /CNTs	441 mAh g ⁻¹ at 500 mA g ⁻¹	500	2
SiO _x /G/C	524 mAh g ⁻¹ at 500 mA g ⁻¹	500	3
ASD-SiOC	501 mAh g ⁻¹ at 500 mA g ⁻¹	300	4
Ni/SiO ₂	522 mAh g ⁻¹ at 500 mA g ⁻¹	150	5
SiO _x /asphalt	600 mAh g ⁻¹ at 200 mA g ⁻¹	600	6
SiO _x @C nanorods	724 mAh g ⁻¹ at 100 mA g ⁻¹	350	7
SiO ₂ multi-shelled hollow sphere	750 mAh g ⁻¹ at 100 mA g ⁻¹	550	8
SiO _x /C	675 mAh g ⁻¹ at 100 mA g ⁻¹	100	9
Si/SiO ₂ /C nanofiber	405 mAh g ⁻¹ at 500 mA g ⁻¹	1000	10
SiO _x /C nanowire	625 mAh g ⁻¹ at 500 mA g ⁻¹	150	11

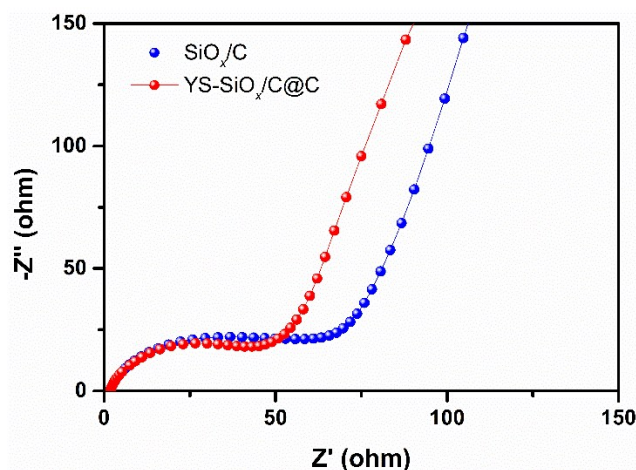


Fig. S5. EIS plots of YS-SiO_x/C@C and SiO_x/C.

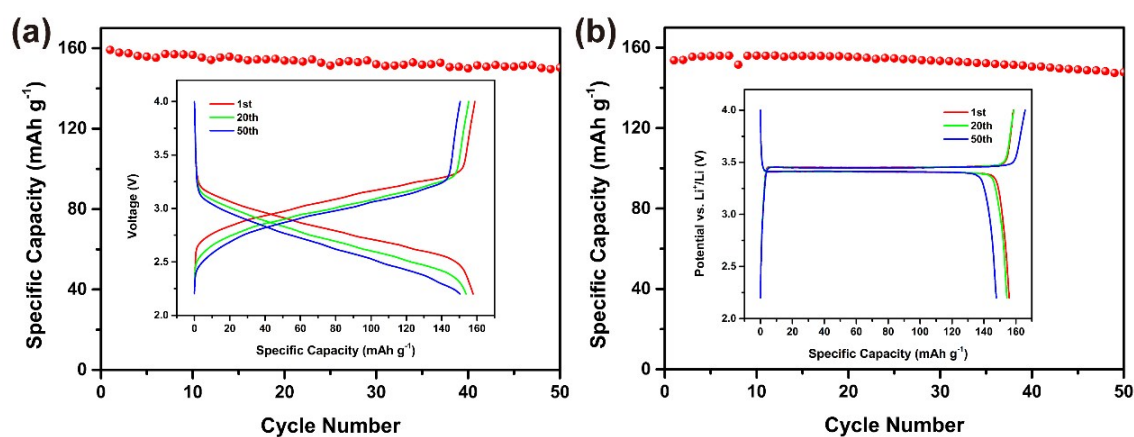


Fig. S6. Cycling performance of YS-SiO_x/C@C//LiFeO₄ full cell (a) and LiFeO₄ at 0.1 C for 50 cycles with the charge/discharge profiles showing in the inset.

References

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